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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/892,139	06/26/2001	Yasuhiko Mizushima	P/1878-171	1950

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EXAMINER	
PHAN, HANH	

ART UNIT	PAPER NUMBER
2638	

DATE MAILED: 09/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/892,139	MIZUSHIMA ET AL.	
	Examiner	Art Unit	
	Hanh Phan	2638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 June 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,5,6 and 8-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,5,6 and 8-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is responsive to the Amendment filed on 07/15/2005.

2. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 5, 6 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heflinger (US Patent No. 5,726,786) in view of Eller et al (US Patent No. 6,330,093).

Regarding claims 1 and 10, referring to Figures 1-4, Heflinger teaches an optical data bus communication system of an artificial satellite, comprising:

a plurality of first devices, each of which is equipped with an optical transmitter (i.e., optical transmitters 1-3, Fig. 1, col. 14, lines 2-4) each transmitter transmitting signals;

a reflection means (i.e., a Flat mirror, Fig. 1) that is provided on the entire inner surface of, or at prescribed locations inside, the case of the artificial satellite; and

a plurality of second devices, each of which is equipped an optical receiver (i.e., optical receivers 1-3, Fig. 1, col. 14, lines 2-4) that receives optical signals that are transmitted from the optical transmitters (i.e., optical transmitters 1-3, Fig. 1) both directly and after reflection and diffusing by the reflection means (i.e., Flat mirror, Fig. 1), each receiver receiving optical signals and reproducing the optical signals from these received signals (see Figures 1-4 and col. 14, lines 45-67 and col. 19, lines 32-62).

Hefinger differs from claims 1 and 10 in that he fails to specifically teach each optical transmitter transmitting signals of a different wavelength and each optical receiver receiving optical signals of a different wavelength. However, Eller in US Patent No. 6,330,093 teaches each optical transmitter transmitting signals of a different wavelength and each optical receiver receiving optical signals of a different wavelength (Figures 6 and 7, col. 3, lines 60-67 and col. 4, lines 1-34). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the each optical transmitter transmitting signals of a different wavelength and each optical receiver receiving optical signals of a different wavelength as taught by Eller in the system of Heflinger. One of ordinary skill in the art would have been motivated to do this since Eller suggests in column 3, lines 60-67 and col. 4, lines 1-34 that using such the each optical transmitter transmitting signals of a different wavelength and each optical receiver receiving optical signals of a different wavelength have advantage of allowing reducing the interference between the signals.

Regarding claim 5, Heflinger further teaches the optical transmitter is equipped with a wide-angle LED as a light source for transmission, and the optical receiver is equipped with a wide-angle photodiode for receiving light emitted from the LED (Figs. 1-4, col. 13, lines 60-67 and col. 14, lines 1-12).

Regarding claim 6, Heflinger further teaches the reflection means is a polygon reflection mirror (Figs. 1 and 2).

5. Claims 8, 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable Heflinger (US Patent No. 5,726,786) in view of Eller et al (US Patent No. 6,330,093) and further in view of Ohhata et al (US Patent No. 6,304,357).

Regarding claims 8 and 11, Heflinger as modified by Eller teaches all the aspects of the claimed invention except fails to teach the optical receiver comprises an 0/E converter for converting received optical signals to electrical signals, again control means for converting electrical signals that are converted by the 0/E converter to electrical signals of a required level; and a pulse width shaping means for converting electrical signals of a required level that are converted by the gain control means to digital signals of a prescribed pulse width. However, Ohhata in US Patent No. 6,304,357 teaches an optical receiver comprises an 0/E converter for converting received optical signals to electrical signals, again control means for converting electrical signals that are converted by the 0/E converter to electrical signals of a required level; and a pulse width shaping means for converting electrical signals of a required level that are converted by the gain control means to digital signals of a prescribed pulse width (Fig.

1, col. 1, lines 10-44). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the optical receiver comprises an 0/E converter for converting received optical signals to electrical signals, again control means for converting electrical signals that are converted by the 0/E converter to electrical signals of a required level; and a pulse width shaping means for converting electrical signals of a required level that are converted by the gain control means to digital signals of a prescribed pulse width as taught by Ohhata in the system of Heflinger modified by Eller. One of ordinary skill in the art would have been motivated to do this since Ohhata suggests in column 1, lines 10-44 that using such the optical receiver comprises an 0/E converter for converting received optical signals to electrical signals, again control means for converting electrical signals that are converted by the 0/E converter to electrical signals of a required level; and a pulse width shaping means for converting electrical signals of a required level that are converted by the gain control means to digital signals of a prescribed pulse width has advantage of allowing increasing the power level of signal to a constant level and providing an optical receiver with high sensitivity and wide dynamic range.

Regarding claim 9, the combination of Heflinger, Eller and Ohhata teaches the pulse width shaping means comprises: a comparator that takes output of the gain control means as one input and a reference voltage as another input and, based on the positive or negative of the difference between these inputs, converts electrical signals of a required level that are output from said gain control means to digital signals; and a sampling means that performs sampling by a sampling signal of a prescribed frequency

to convert digital signals that are converted by said comparator to digital signals of a prescribed pulse width (Fig. 1of Ohhata, col. 1, lines 10-44).

Response to Arguments

6. Applicant's arguments with respect to claims 1, 5, 6 and 8-11 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (571)272-3035.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye, can be reached on (571)272-3078. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.

HANH PHAN
PRIMARY EXAMINER